

CLAIMS

1 Claim:

1. A connector for a fluid conduit, the connector comprising:
a conduit structure having a body portion, a threaded portion, a frustro-conical surface and a seal groove, the seal groove disposed between the threaded portion and the body portion, the seal groove formed into the frustro-conical surface [and] along a place that is perpendicular [thereto] to the surface, the seal
5 groove being defined by a constant radius; and
a compressible annular seal member coupled to the conduit structure and disposed at least partially in the seal groove.
2. The connector of Claim 1, wherein the annular seal member has a circular cross-section.
3. The connector of Claim 2, wherein the depth of the seal groove is approximately equal to seventy-five percent of the cross-sectional diameter of the annular seal when the seal is in an uncompressed state.
4. The connector of Claim 1, wherein the conduit structure further includes a threaded portion adapted for threadably engaging a mating connector and generating a clamping force which is exerted onto the annular seal.

5. The connector of Claim 1, wherein the conduit structure further includes a fluid aperture having an axis which coincides with a longitudinal axis of the frustro-conical surface.

6. The connector of Claim 1, wherein the frustro-conical surface is an exterior surface.

7. The connector of Claim 1, wherein the frustro-conical surface is an interior surface.

8. A connector for a fluid conduit, the connector comprising:
a conduit structure having an externally threaded portion, a seal portion and a body portion, the seal portion disposed between the externally threaded portion and the body portion, the seal portion including a frustro-conical exterior surface and a seal groove, the seal groove formed into the frustro-conical exterior surface at approximately 90 degrees to [the] a plane extending along the exterior surface, and seal groove being defined by a constant radius; and
a resilient seal member coupled to the conduit structure and disposed at least partially in the seal groove.

9. The connector of Claim 8, wherein the annular seal member has a circular cross-section.

10. The connector of Claim 9, wherein the depth of the seal groove is approximately equal to seventy-five percent of the cross-sectional diameter of the annular seal.

11. The connector of Claim 8, wherein the conduit structure further includes a fluid aperture having an axis which coincides with a longitudinal axis of the frustro-conical exterior surface.

12. The connector of Claim 8, wherein the conduit structure further includes an unthreaded portion between the externally threaded portion and the seal portion, the unthreaded portion having an outside diameter which is less than the minor diameter of the externally threaded portion.

13. The connector of Claim 8, wherein the included angle of the frustro-conical portion is about 15 degrees to about 130 degrees.

14. A hydraulic fitting for a fluid conduit, the fitting comprising:
- a nut having a seal portion, a body portion, and an internal bore, the seal portion including a frustro-conical exterior surface and a seal groove, the seal groove formed into the frustro-conical exterior surface and perpendicular thereto,
 - 5 the seal groove being defined by a constant radius;
 - an annular seal member coupled to the nut and disposed at least partially in the seal groove;
 - a threaded member extending through the internal bore; and

a female connector engageable with the nut and having a frustro-conical surface.

15. The fitting of Claim 14, wherein the annular seal member has a circular cross-section.

16. The fitting of Claim 15, wherein the depth of the seal groove is approximately equal to seventy-five percent of the cross-sectional diameter of the annular seal.

17. The fitting of Claim 14, wherein the frustro-conical exterior surface has an included angle of approximately 20 degrees to approximately 50 degrees.

18. A fitting for a fluid conduit, the fitting comprising:

a fitting member having a cap, a threaded portion and a seal portion, the seal portion including a frustro-conical surface and a seal groove, the seal groove formed into the frustro-conical surface and perpendicular thereto, the seal groove

5 being defined by a constant radius;

an annular seal member disposed at least partially in the seal groove; and

a port for receiving the fitting member.

19. The fitting of Claim 18, wherein the seal member has a circular cross-section and is compressible.

20. The fitting of Claim 18, further comprising a second seal member, the port having a groove portion for receiving the second seal member.

21. The fitting of Claim 18, further comprising a male connector connected to the fitting member, and a bore passing through the port, fitting member and male connector.

22. A connector for a fluid conduit, the connector comprising:
a body portion;
a first conduit structure connected to a first end of the body portion, the first
5 conduit structure having a first externally threaded portion and a first seal portion, the seal portion disposed between the first externally threaded portion and the body portion, the first seal portion including a first frustro-conical exterior surface and a first seal groove, the first seal groove formed into the first frustro-conical exterior surface at approximately a right angle thereto, the first seal groove being
10 defined by a constant radius;
a second conduit structure connected to a second end of the body portion, the second conduit structure having a second seal portion and a second externally threaded portion, the second externally threaded portion disposed between the second seal portion and the body portion, the second seal portion including a
15 second frustro-conical exterior surface and a second seal groove, the second seal groove formed into the second frustro-conical exterior surface and perpendicular thereto, the second seal groove being defined by a constant radius;

a first annular seal member coupled to the first conduit structure and disposed at least partially in the first seal groove; and

a second annular seal member coupled to the second conduit structure and disposed at least partially in the second seal groove.

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23. The connector for a fluid conduit as claimed in claim 1, further comprising: a second conduit structure connected to a second end of the body portion, the second conduit structure having a second seal portion and a second externally threaded portion, the second externally threaded portion disposed between the
10 second seal portion and the body portion, the second seal portion including a second frusto-conical exterior surface and a second seal groove, the second seal groove formed into the second frusto-conical exterior surface and perpendicular thereto.

15 24. The connector of claim 23, further comprising a second annular seal member coupled to the second conduit structure and disposed at least partially in the second seal groove.

20 25. The connector for a fluid conduit as claimed in claim 8, further comprising a second conduit structure connected to a second end of the body portion, the second conduit structure having a second seal portion and a second externally threaded portion, the second externally threaded portion disposed between the second seal portion and the body portion, the second seal portion including a second-frusto conical exterior surface and a second seal groove, the

second seal groove formed in the second frustro-conical exterior surface and perpendicular thereto.

26. The connector of claim 25, further comprising a second annular seal member coupled to the second conduit structure and disposed at least partially in the second seal groove.

27. The connector of claim 8, further comprising another seal located on another frustro-conical surface.

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28. The connector of claim 8, further comprising another frustro-conical surface that has a groove disposed therein for receiving a seal.